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Letter

Development of Integrated Psychosocial Interventions in Traffic Accident Management as a Necessity

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Dear Editor,

Traffic accidents have undeniable economic, psychological, and social consequences. According to the latest report from the World Health Organization (2023), 1.35 million people die in traffic accidents worldwide each year (1). Accidents are the leading cause of death among children aged 5 to 14 and young adults aged 25 to 29 and the eighth leading cause of death for adults. Additionally, injuries and disabilities resulting from accidents inflict irreparable damage on societies. In Iran, the Welfare Organization covers 31,270 individuals with spinal cord injuries, 60% of whom were disabled due to traffic accidents, and traffic accidents are the third leading cause of homelessness among female heads of households (2).

The cost of road accidents in most countries amounts to approximately 3% of their GDP. However, in Iran, this cost is nearly double the global average, accounting for about 6 to 7% of GDP. In 2022, this translated to nearly 490 trillion Rials. Low-income countries, which possess only 1% of the world's vehicles, account for approximately 13% of global traffic-related fatalities. In contrast, high-income countries, despite owning 40% of the world's vehicles, contribute to only 7% of total traffic deaths (3, 4).

India, one of the countries with the highest road accident fatality rates, loses approximately 150,000 lives annually due to traffic collisions. Conversely, European nations such as Sweden, which have implemented stringent road safety policies, report fewer than three deaths per 100,000 people (5).

A review of available sources indicates that numerous factors contribute to traffic accidents (2). The primary causes include human errors, road conditions, vehicle safety, environmental factors, and psychological influences such as substance use and mental health. According to a 2022 World Bank Report, key factors contributing to road accidents in developing countries include inadequate safety regulations (e.g., failure to use helmets and seat belts), poor road conditions and infrastructure, increasing motorcycle usage without sufficient regulation, and weak emergency response and post-accident care (6). However, comparative studies across different countries suggest that human error is a factor in 70 to 90% of all accidents and injuries (7). Implementing psychosocial interventions alongside strict road safety policies can play a crucial role in reducing accident rates in developing countries.

According to the model proposed by Shope and Bingham, various demographic factors (such as age, gender, education, and place of residence), developmental factors (including hormone levels, energy levels, and sleep quality), behavioral factors (such as antisocial behavior, substance abuse, and alcohol consumption), personality traits (such as aggression, irritability, and depression), environmental

perceptions (including societal norms, media advertisements, and expectations of behavior), and driving ability, experience, and skill all contribute to traffic accidents (8).

A study conducted by Javadi et al. in Tehran found that predictors of driving behavior include factors such as maternal literacy, parenting style, perception of police orders, history of imprisonment or criminal activity, personality traits, mental health, concentration levels, and drug use (9-11). Substance use is one of the most significant psychological factors contributing to traffic accidents, as it impairs alertness, slows reaction time, reduces motor coordination, and increases risk-taking behavior. Research indicates that alcohol and drug consumption, including cannabis, cocaine, and amphetamines, increases the likelihood of traffic accidents by up to three times (5). Therefore, implementing preventive programs to combat drug use among drivers, enforcing stricter regulations on psychoactive substance consumption, and raising public awareness can significantly reduce traffic accident rates.

Germany provides a strong example of how psychosocial interventions can effectively reduce traffic-related fatalities. In 1970, the country recorded 21,700 traffic-related deaths. By implementing a range of interventions — including early road safety education in schools, counseling and rehabilitation programs for delinquent drivers, a multi-stage licensing system, regulation of misleading advertisements, and comprehensive public awareness campaigns — Germany reduced this figure to 3,600 in 2013 and further down to 2,750 in 2023 (12).

In Iran, despite the implementation of various safety programs, the lack of focus on psychosocial interventions has limited their impact on reducing traffic accident statistics (Figure 1). According to the Sixth National Development Plan (2017 - 2021), a 31% reduction in accidents was targeted. However, police statistics reported only a 16.4% reduction by the end of the plan, while forensic reports indicated a reduction of just 12.9%, meaning that the program achieved only about 50% of its goal (9, 13).

According to the World Health Organization (WHO, 2023), only 25 countries have mandated psychological assistance for victims of road accidents and their families (2). Establishing and expanding an integrated psychosocial intervention program at both national and international levels — continuously and across multiple sectors—aligned with social developments, can significantly reduce traffic accidents while requiring far less financial investment in the medium and long term.

Some practical recommendations in this field include:

- National policy development for implementing psychosocial interventions in traffic accident prevention

- Evaluation of the psychosocial history of driver's license applicants

- Provision of psychosocial interventions for offending drivers

- Enhancing young people's perception of police orders

- Development of practical applications to introduce drivers to hazardous situations

- Promoting general well-being among young people to prevent depression

- Encouraging a sense of responsibility and conscientiousness among youth

- Improving driving skills and behavior among novice drivers

- Rehabilitation programs for young offending drivers

- Enhancement of aggression control skills for safer driving behavior

- Encouraging responsible driving practices among citizens

- Promoting positive and effective parenting to instill responsible driving habits

- Teaching traffic rules and safety to children through mothers, kindergarten teachers, and school educators

- Creating effective digital educational content to raise awareness and reduce accidents

- Encouraging teenagers to use public transportation as a safer alternative

- Strengthening the civic role of non-governmental organizations in road safety

- Highlighting successful local models that focus on psychosocial components in accident prevention

- Conducting scientific research to produce strong evidence for policy recommendations

- Assessing and evaluating interventions to identify and promote successful models

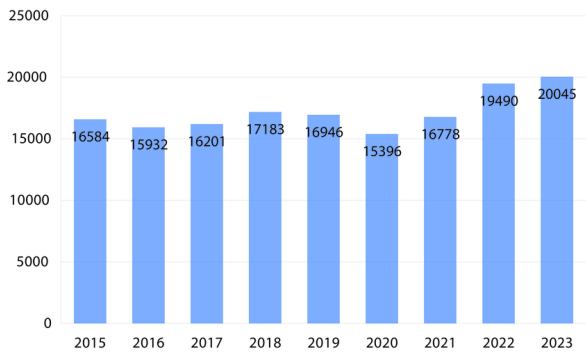

Figure 1. The number of fatalities in road accidents in Iran since 2015 - 2023

- Developing and implementing educational curricula on road accident prevention for the general public and students

By integrating these measures, governments and institutions can foster a safer driving culture, reduce traffic-related injuries and fatalities, and improve overall public health outcomes.

Footnotes

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